REMARKS

I. Introduction

In view of the above amendments and the following remarks, reconsideration of the rejections and objections contained in the Office Action of August 26, 2009 is respectfully requested.

By this amendment, claims 2-7 and 9-30 have been cancelled without prejudice or disclaimer to the subject matter contained therein, and claims 31-46 have been added. Claims 1, 8, and 31-46 are now pending in the application. No new matter has been added by these amendments.

The specification has been reviewed and revised. Due to the number of revisions, the amendments to the specification have been incorporated into the attached substitute specification. For the Examiner's benefit, a marked-up copy of the specification and abstract indicating the changes made thereto is also enclosed. No new matter has been added by these revisions. Entry of the substitute specification is thus respectfully requested.

II. Claim Objections

On page 2 of the Office Action, claims 6-13 are objected to as being in improper form and claims 4 and 5 are objected to regarding minor informalities. Regarding claims 6-13, the format of these claims was corrected by Preliminary Amendment on June 1, 2006. Accordingly, Applicants respectfully request examination on the merits of claim 8. As noted above, claims 4-7 and 9-13 have been cancelled, and thus the objection to these claims is believed to be moot.

III. Prior Art Rejections

Currently, claims 1 and 3-5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Keicher et al. (US 6,391,251) in view of Jang et al. (US 6,401,001) and claim 2 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Keicher et al. in view of Jang et al. and in further view of Krause et al. (US 5,321,228).

Claim 1 is patentable over Keicher et al., Jang et al., and Krause et al., whether taken alone or in combination, for the following reasons. Claim 1 requires a method for fabricating a tridimensional solid object by sintering inorganic particles with a controlled size distribution. Keicher et al. discloses a laser cladding process, not a sintering process. In a sintering process, a large portion of the material remains solid during consolidation, whereas in a cladding process all of the constituents undergo a solid to liquid transition. Keicher et al. discloses a process which "places a line of *molten* material onto a substrate," i.e. a cladding process. (See column 6, lines 8-9, emphasis added; see also column 18, lines 38-40: "the powder feedstock material 126, 127 intersects the focused laser beam 125a and *becomes molten* to create a new layer of material 15 of the existing substrate 19." Emphasis added.) Because Keicher et al. does not disclose a method for fabricating a tridimensional solid object by sintering inorganic particles, Keicher et al. cannot meet the requirements of claim 1.

Moreover, one skilled in the art would not modify the cladding process of Keicher et al. in view of any of the prior art, including Jang et al. and Krause et al., to yield a sintering process because sintering and cladding are non-analogous art; they are entirely different processes with entirely different considerations and results. As mentioned above, a large portion of the material remains solid during consolidation in a sintering process, whereas in a cladding process all of the constituents undergo a solid to liquid transition; accordingly, material characteristics are lost in

the complete melting of a cladding process while they are retained in a sintering process. Because sintering and cladding are entirely different processes, a person skilled in the art would not be led to modify the Keicher et al. reference to yield a method of sintering. As such, Keicher et al. cannot meet the requirements of claim 1, whether taken alone or in combination with Jang et al. and Krause et al.

Claim 31 is patentable over Keicher et al., Jang et al., and Krause et al., whether taken alone or in combination, for the following reasons. Claim 31 requires a method for fabricating a tridimensional solid object by sintering inorganic particles with a controlled size distribution, the method comprising: simultaneously directing at least one powdery stream of the inorganic particles and at least one heating flux onto a rigid target area; and maintaining at least bidimensional relative movement between the rigid target area, the powdery stream, and the heating flux during said directing operation, wherein the powdery stream is shaped as a cone with a vertex angle of the cone not exceeding 45°, the powdery stream being directed such that a longitudinal axis extends in a direction of the heating flux and a vertex of the cone is disposed on the rigid target area, wherein a dimensional distribution of the inorganic particles is selected such that about 90% by weight of the inorganic particles are 0.5 to 20 μm in size, wherein the inorganic particles are composed of agglomerated crystallites of less than 10^{-7} m in size, wherein said powdery stream includes the inorganic particles mixed with at least one carrier gas so as to constitute a solid aerosol, wherein the heating flux has a width on the rigid target area not exceeding 20 μm, wherein the inorganic particles are composed of at least two phases: a first phase which constitutes 85% or less of the powdery stream by volume, the first phase having a first melting temperature in degrees Celsius; and at least one other phase, the at least one other phase constituting at least 15% by volume of the powdery stream and having a melting

temperature in degrees Celsius which is lower than 80% of the first melting temperature, and wherein the solid object is fabricated by sintering the inorganic particles directly onto the rigid target area such that only the inorganic particles of the at least one other phase are melted.

As discussed in detail above, Keicher et al. does not disclose a sintering process; accordingly, Keicher et al. cannot meet the requirements of claim 31 and one skilled in the art would not modify the Keicher et al. reference to yield a method which would meet the requirements of claim 31.

Moreover, none of Keicher et al., Jang et al., and Krause et al. disclose a process utilizing inorganic particles composed of at least two phases: a first phase which *constitutes 85% or less of the powdery stream by volume*, the first phase having a first melting temperature in degrees Celsius, and at least one other phase *constituting at least 15% by volume* of the powdery stream and having a melting temperature in degrees Celsius which is lower than 80% of the first melting temperature, wherein the solid object is fabricated by sintering the inorganic particles directly onto the rigid target area such that *only the inorganic particles of the at least one other phase are melted*. Accordingly, those references cannot meet the requirements of claim 31.

Further, it appears that there would have been no reason to modify any of the prior art of record to yield a method which would meet the requirements of claims 1 or 31. As discussed in detail in the specification, the present invention allows for the fabrication of solid objects of high spatial resolution. It is thus submitted that the invention of the present application, as defined in claims 1 and 31, is not anticipated nor rendered obvious by the prior art, and yields significant advantages over the prior art. Allowance is respectfully requested.

Claims 8 depends from claim 1 and are thus allowable for at least the reasons set forth above in support of claim 1. Claims 32-46 depend, directly or indirectly, from claim 31 and are thus allowable for at least the reasons set forth above in support of claim 31.

In view of the foregoing amendments and remarks, inasmuch as all of the outstanding issues have been addressed, Applicants respectfully submit that the present application is now in condition for allowance, and action to such effect is earnestly solicited. Should any issues remain after consideration of the response, however, the Examiner is invited to telephone the undersigned at the Examiner's convenience.

Respectfully submitted,

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